

Commonwealth of Kentucky
Division for Air Quality
COMMENTS AND RESPONSE
ON THE DRAFT PERMIT

Comments on Guardian Automotive Trim's Draft Title V Air Quality Permit were submitted by Robert C. Ray at a public hearing held September 3, 2008.

Permit Application Summary Form

No specific comments were received regarding the Permit Application Summary form. However during the review in response to other comments received, an error was noted in the KY Emissions Inventory System. The KY EIS system was used to generate the 2007 actual emissions estimate that was given on the Permit Application Summary. Corrections have been made to the KY EIS system and therefore it was necessary to revise the estimate of actual emissions for 2007 that was given on this form.

Permit Statement of Basis

No specific comments received.

Title V Permit

No specific comments received.

September 3, 2008 Hearing Questions

General Division Comment.

Mr. Ray has addressed these questions and comments to Guardian, and they cover a wide range of subjects. All questions are including in this response, however the Division can only provide a response on those issues that relate to the permit and supporting documentation, the permitting process, applicable regulations, compliance demonstration methods, and other matters as they relate to air emissions. The Division cannot speak for Guardian in response to those questions which seek an answer in the form of an opinion. Nor would it be appropriate for the Division to respond to comments regarding Guardian's business practices, company values, or personnel issues. Additionally, there are other questions on matters which do not fall under the Division's authority such as worker health and safety or fire prevention. The Division has attempted to identify the appropriate authority in response to such questions.

Statement: pp. 1-3. There are no comments requiring a response from the Division in this section.

Guardian Presentation Rebuttal: pp. 3-11. There are no comments requiring a response in this section.

Foundation Questions: pp. 11-20.

Safety, Health and Welfare and provide an occupational working environment free from know hazards? Do you believe that the OSHA and EPA laws and regulations are “Minimum Regulatory Requirements” or “Maximum Regulatory Requirements”?

This question seeks an opinion from Guardian. The Division has no comments.

If you believe that the OSHA and EPA laws and regulations are “Minimum Regulatory Requirements” then Guardian could institute and implement more stringent compliance measures, especially if it involved 1,200 school age children; isn’t that correct?

This question seeks an opinion from Guardian. The Division has no comments.

Guardian is equally obligated and has a duty to protect the citizens of its community and the community for which it earns a profit, down to the Littlest, last Kindergarten Student, of its community and provide environmental conditions (Air, Land and Water) that are free from hazards, toxicants, carcinogens, mutagens, teratogens or any other Safety and Health condition that may compromise its “children citizens” health and safety as a result of Guardians many and varied manufacturing processes?

No response necessary.

The section of their most recent permit application specifically notes that “No” coordination has been affected with local responders and response agencies; if that be the case then there too is “No” coordination with the RCSD, it’s Elementary School, High School, Principals / Management / Administration or Staff personnel.

The application for permit revision contained no toxic or flammable substances listed in 40 CFR 68 Subpart F [112(r) pollutants] held in such amounts which required submittal of an emergency response plan.

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Why are additional chemicals listed within its Title V Air Permit submission but not on the EPA Website?

Different regulations apply. The list of chemicals on the EPA website are those chemicals subject to the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 112(r) of the Clean Air Act.

From the EPA website:

The Toxics Release Inventory (TRI) is a database that contains detailed information on nearly 650 chemicals and chemical categories that over 23,000 industrial and other facilities manage through disposal or other releases, recycling, energy recovery, or treatment. The data are collected from industries including manufacturing, metal and coal mining, electric utilities, commercial hazardous waste treatment, and other industrial sectors. Information on the North American Standard Industry Classification System (NAICS) can be found at www.epa.gov/tri/lawsandregs/naic/ncodes.htm.

Section 313 of the Emergency Planning and Community Right to Know Act (EPCRA) of

1986 was enacted to facilitate emergency planning, to minimize the effects of potential toxic chemical accidents, and to provide the public with information on releases of toxic chemicals in their communities. The Pollution Prevention Act (PPA) of 1990 mandates collection of data on toxic chemicals that are treated, recycled, and combusted for energy recovery. Together, these laws require facilities in certain industries, which manufacture, process, or use toxic chemicals above specified amounts, to report annually on disposal or other releases and other waste management activities related to these chemicals.

The U.S. Environmental Protection Agency (EPA) maintains this information in a national database called the Toxics Release Inventory, which is available to the public via the Internet at www.epa.gov/tri.

I also noted, while on the EPA Website for Guardian in Morehead, KY is that the total quantities of chemicals used, per annum, was not updated? In fact, it contained information that was a Year or more old. Why is that?

Unknown; the KY DAQ has no responsibility for updates to the U.S. EPA website.

Are you familiar with the Term “the Dose is the poison”?

No. This term has no regulatory implications.

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Mr. Ray has submitted a list of pollutants from the Title V permit. He requests to be informed if that list is complete.

There are some pollutants missing from Mr. Ray’s summary of pollutants from the Title V permit as listed on this page. The complete list of chemicals potentially emitted by Guardian is included in the Permit Application Summary that was included in the draft permit package submitted for public review.

Page 14 - There are no comments on this page requiring a response.

Page 15 –

What year was Guardian occupied and began production?

Construction began in 1996. Full production was not achieved until 1998.

Did you obtain a Title V “installation permit” at first?

Guardian was issued a Federally Enforceable permit issued pursuant to 40 CFR Part 70 and Kentucky’s Part 70 Operating Permit Program effective December 14, 1995. This was a combined construction / operating permit (F-96-025) issued under 401 KAR 50:035E on September 6, 1996 with a source wide VOC emission limitation of 250 tons per year (tpy) for any consecutive 12-month period.

Did that installation permit provide you with sufficient Title V permit coverage’s for the volume of pollutants you were discharging at that time?

Yes. The initial permit covered all pollutants regulated under the Clean Air Act (CAA) and the amounts of these pollutants emitted from Guardian.

What level of polluter were you considered initially? (small, medium large)

“Level of polluter” and the terms “small, medium”, and “large” are not defined in the regulations. The Division issued the permit based on Guardian’s Potential to Emit (PTE).

Is Guardian considered a Minor or Major source emitter?

Guardian has the potential to emit both regulated pollutants (VOC) and Hazardous Air Pollutants (HAP) in amounts exceeding major source thresholds.

What does that mean?

From 401 KAR 52:001,

(45) "Major source" means a stationary source or a group of stationary sources that emits or has a potential to emit at or above a major source threshold ... [deleted].

(46) “Major source threshold” means PTE:

(a) For HAPs:

1. Ten (10) tons per year or more of a single HAP;
 2. Twenty-five (25) tons per year or more of combined HAPs; or
 3. A lesser quantity that the U.S. EPA establishes in a final rulemaking; or
- (b) 100 tons per year or more for regulated air pollutants other than HAPs ... [for attainment areas]

(56) "Potential to emit" or "PTE" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design ... [deleted].

What volume of pollutants were you discharging at that time in total pounds per annum?

<u>Pollutant</u>	<u>1998 Actual Emissions (tons per year)</u>
Total Suspended Particulates	1.894
CO	1.713
SO ₂	0.050
NO ₂	8.150
VOC	196.546
PM10	1.771
Ethyl Benzene	1.1632
Styrene Monomer	0.005
Acrylonitrile	0.0001
Cumene	0.0002
Methyl Isobutyl Ketone	3.490
N-Butyl Acetate	0.434
Xylene	1.829
Aluminum Metal and Oxide	0.030
Sulfuric Acid	0.335
Copper	0.031

Chromium	0.0005
Nickel	0.0001
Nitric Acid	0.007

Did you subsequently obtain an “operating permit?”

This was not necessary as Kentucky has a combined operating and construction permit program.

What volume of pollutants were you discharging under the guise of the “operating permit” in total pounds per annum?

See the summary above.

Has that volume of discharged pollutants increased over time?

No. Actual emissions have decreased.

What is the current volume of discharged pollutants, in total pounds per annum?

The Revised Permit Application Summary which included with this proposed permit package lists the most recently reported actual emissions and the PTE for each pollutant.

Did that volume change as time passed and did you need another type of permit?

The PTE increased due to new construction. As a result of the increase in potential emissions Guardian became subject to New Source Review (NSR) – Prevention of Significant Deterioration of Air Quality (PSD) under Title I of the CAA. In general, sources that are subject to Title I still receive a Title V permit. One difference between the original permit and Guardian’s current permit is that the current permit is issued under 401 KAR 52:020, which became effective on January 15, 2001. The 250 tpy VOC emission limitation included in the original permit was also removed when the source became subject to Title I, but their actual emissions have decreased, in part due to the application of Best Available Control Technology (BACT) resulting from the PSD review.

What other type of permit was necessitated by your increased annual volume of discharged pollutants?

See above. It should be noted too that a source is never allowed to increase emissions and then seek the necessary approval. Typically a permit or permit revision must be issued before any new construction or modification is allowed to begin if that construction or modification will increase the PTE for that source. Refer to Section A of the permit and 401 KAR 52:020. Guardian obtained the proper permit revision prior to construction.

Is Guardian now considered a Major Source Emitter?

The term “Major Source Emitter” is not specifically defined, however both potential emissions and actual emissions are above major source thresholds for Title V. Guardian is

also considered a major source under Title I based on PTE.

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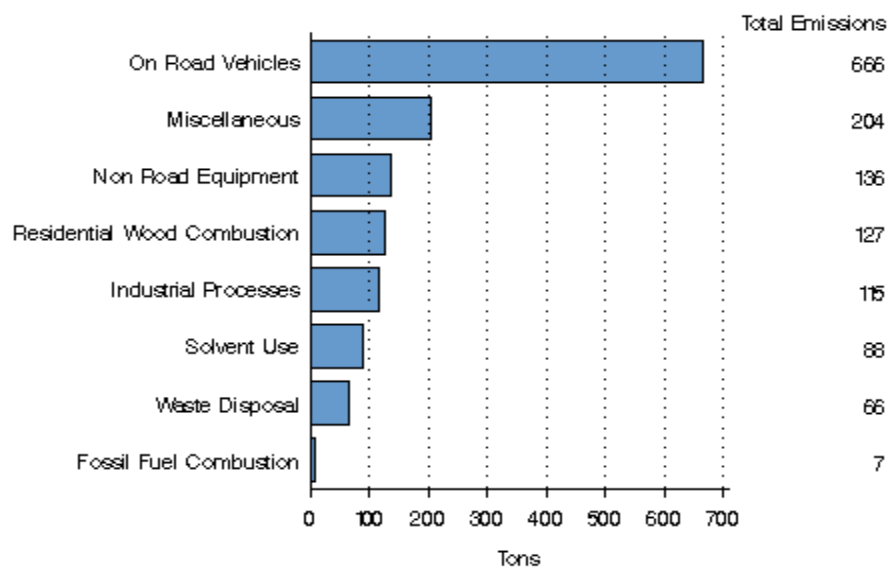
Out of all pollution emitters or pollution emission permitting, in the United States, where does Guardian fall in terms of percentile?

The Division is not sure how to interpret this question or if it can be answered with any degree of certainty. “Pollution emitters” seems to imply actual emissions, whereas “pollution emission permitting” seems to imply the potential to emit as allowed under the permit. Also it is not specified whether this question concerns one particular pollutant or the total of all pollutants being emitted. If chief concern behind this question is public safety then it must be pointed out that there are different levels of emissions considered “safe” for different pollutants, which makes the sum total emissions a meaningless measure.

In attempting to answer the question and give some perspective to the commenter we considered Volatile Organic Compounds (VOC) emissions, since VOC is the pollutant for which Guardian has the highest potential to emit. The majority of Hazardous Air Pollutants (HAP) emitted by Guardian are also VOC (or VHAP) which are counted towards the total reported VOC emissions in addition to being reported individually.

For 2002, which is the most recent data available on the EPA website, Guardian ranked 2638 out of 51,353 facilities. Guardian’s contribution to the VOC emissions emitted from stationary sources in the United States was 0.007%. This percentage does not include mobile sources which are the largest contributor to VOC emissions in the United States. Rowan County is given as an example below.

Volatile Organic Compounds Emissions by Source Sector
in Rowan County, Kentucky in 2002



How many shifts operate at Guardian?

This is not a subject concerning the Division. PTE is calculated at 8760 hours per year, and Guardian does not have restrictions on the hours of operation.

Who is the Qualified Person at Guardian charged with Environmental Compliance?

How long has that person filled that position?

Compliance with the permit is the responsibility of the permittee; Guardian. Personnel information is not required by regulation and therefore the Division does not maintain the requested information.

Who is the Qualified Person at Guardian charged with Occupational Safety and Health?

How long has that person filled that position?

The Division only regulates Air Quality and has no authority to administer programs under OSHA or any other federal, state, or local agency.

Who is the Qualified Industrial Hygienist at Guardian?

How long has that person filled that position?

Do you have a high turnover rate within these positions just described?

What are their Educational or Certification Qualification Requirements, by Guardian, to hold these positions?

Do any of these professionals hold the certifications or designations as; PE, REA, Geologists, CSP, CIH, Certified in Hazardous Waste Operations, First Responder, etc.

Have these positions been filled by a Qualified professional 100% of the time?

If not, describe the gaps in employment (length of the gaps in days, weeks, or months) for these positions and how those gaps were dealt with?

Who assumed the duties of the other positions and what Qualified them to do so?

Beginning with the person charged with Environmental Air Quality Compliance. Do you use EHS Consultants?

What services do these EHS consultants provide?

Why do you use consultants versus hiring full-time employees to perform the duties of your consultants?

Is there a reduced employee population present during the Second and Third Shifts?

Do you maintain a full complement of Qualified EHS staff on second shift?

Do you maintain a full complement of Qualified EHS staff on third shift?

Refer to the previous (2) responses by the Division.

How do you maintain compliance when no qualified EHS presence is on second or third shifts?

Compliance Demonstration Methods are specified in the permit.

Who is the Qualified person at Guardian to take and read opacity values of stack discharge; gases, vapors, mists, dusts, and fumes?

Again, personnel information is not required by regulation and therefore the Division does not maintain the requested information. See also the Division's response to the comments on Page 17 as given below.

Page 17 –

Has your Qualified EHS person ever attended a “smoke school”?

Unknown. Guardian has employed outside agencies to take Method 9 opacity readings.

Describe what a “smoke school “is please.

Training and certification for Method 9 opacity observations.

Is there a certification issued to those who successfully pass and complete the smoke school curriculum?

Yes

Are there annual refresher / CEU requirements for those who have successfully passed and completed the smoke school curriculum?

From Appendix A-4 to 40 CFR Part 60—Test Methods 6 through 10B:
“The certification shall be valid for a period of 6 months, at which time the qualification procedure must be repeated by any observer in order to retain certification”.

Are your certified smoke school personnel currently still certified?

Unknown. Guardian has employed outside agencies to take Method 9 opacity readings.

Do you have a certified opacity person on each shift?

How do you make opacity observations when the certified opacity person is not present or works another shift?

Method 9 opacity readings are not required for each shift. See Section B of the permit.

Are your smoke stacks lighted?

How do they make opacity observations if the towers are not lighted and the discharge openings are not lighted?

What type of light? Fluorescent, Incandescent, Sodium, Mercury?

Do these different light sources have different wavelengths of light?

Do light wavelengths have any effect or play a role in the determination of opacity?

Not applicable. Method 9 requires opacity readings during daylight hours.

Are there quantitative and qualitative accuracy and precision issues regarding the validity of

opacity testing and verification?

Yes

Opacity testing will not tell you nor will opacity testing determine the chemical composition of the; gases, vapors, mists, dusts and fumes from a smoke stack discharge; will they?

This is correct. Composition of the discharge must be determined through testing, mass balance, or other process knowledge, each combined with regular monitoring.

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I see no record of use of any direct or indirect read analytical instrumentation such as: Flame Ionization detectors Gas Chromatography Electron Capture Detector Thermal Conductivity Detector Photoionization Detector Mass Spectrometry High Performance Liquid Chromatography UV Absorbance Detectors Fluorescence Detectors Electrochemical Detectors Ion Chromatography Spectrophotometric Methods

Instrumentation necessary for monitoring and testing are specified in the applicable regulations, EPA's Test Methods, or both. The permit needs only to cite the method to be used. Specific test methods listed in the permit include:

- 1, 1A – Velocity Traverse Points
- 2, 2A, 2C, 2D, 2F, or 2G – Flow Rate Determination
- 3, 3A, or 3B – Dry Gas Analysis
- 4 – Moisture Content of Stack Gases
- 5 – Particulate Matter
- 9 – Visual Opacity
- 24 – Surface Coatings
- 25, 25A – Gaseous Organic Emissions
- 204 - Permanent / Temporary Enclosure for Capture Efficiency
- 306, 306A – Chromium Emissions Electroplating / Anodizing
- 306B – Surface Tension for Tanks Electroplating / Anodizing
- 311 – HAPs in Paints & Coatings
- ASTM Method D1475-98, Standard Test Method for Density of Liquid Coatings, Inks, and Related Products

Refer to <http://www.epa.gov/ttn/emc/> for details of the applicable Test Methods.

I see no record of use of either AIHA accredited laboratories for validation and analytical sampling analysis.

When laboratory analysis is required this is specified in the applicable Test Method.

Do you conduct continuous, instantaneous (meaning; second by second, minute by minute, hour by hour, day by day, year by year) active monitoring, sampling and recordings of the composition of the discharged; gases, vapors, mist, fumes and any other discharge from your dilution ventilation or smoke stack discharge systems, verifying the content, concentration and makeup of their stack discharges?

Guardian is required to conduct continuous monitoring for the control system for the painting operation. Continuous monitoring for purposes of the applicable regulation 40 CFR

63 Subpart PPPP is defined as one reading every 15 minutes. Refer to Sections B, D, and E of the permit.

So how do you know the composition and concentration of the gases, vapors, mists, dusts and fumes from a smoke stack discharge without conducting active or grab sampling of a volume of smoke stack discharged chemically contaminated air?

Emissions from any coating operation are determined by mass balance. The main source of emissions from a coating operation is simply the volatile portion of the coatings and solvents used in the process. 100% of the volatile material contained in the coatings and solvents is considered to be emitted from an uncontrolled process. Because the usage rate and composition of these coating materials are known, the composition and quantity of the emissions is also known.

Emissions from the painting operation at Guardian are controlled by Regenerative Thermal Oxidizers (RTOs). The capture efficiency and the control efficiency of the RTOs are established by testing. If 100% control were achieved the only emissions from the RTOs would be the products of combustion, mainly carbon dioxide and water vapor. If the actual efficiency determined by testing is less than 100%, that portion of the uncontrolled emissions exiting the RTOs is considered to be of the same relative composition as the uncontrolled exhaust stream entering the control device. Continuous monitoring is employed to ensure that capture and control efficiencies established during testing are maintained. Refer to Section B of the permit for the compliance demonstration equations. The Statement of Basis submitted with the draft permit package for public review also contains a summary of these equations.

Emissions from the electroplating operations are determined from the hours of operation, based on engineering analysis using emission factors and other information provided by the EPA. More detail is included in the Statement of Basis submitted with the draft permit package for public review.

Emissions from the injection molding operation are again determined by mass balance using information from the resin manufacturer and emission factors developed by the Air & Waste Management Association. The resin is solid which melted and reshaped in the various molds. Emissions from this process consist of the trace amounts of un-reacted volatile material in the resin as it arrives from the resin manufacturer.

Emissions from the boilers are determined from natural gas usage and emission factors from the EPA. See the Statement of Basis.

Page 19 – There are no comments concerning permit related issues on this page.

Page 20 - There are no comments concerning permit related issues on this page.

Process Issues: pp. 20-27.

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Describe the various production processes at Guardian?

Injection molding of plastic automotive trim parts which are then painted or electroplated. See the Statement of Basis. The Draft Permit also contains detailed listings of all production processes at Guardian.

Describe your Open Processes, Open Tanks, Open Vessels, Open Manufacturing / Assembly as they relate to chemical usage.

The meaning of the term “open process” is not clear. Injection molding is a “closed process” by definition of the mold type, but the injection molding equipment is uncontrolled due to the inherent low emissions from this process. The painting operations are enclosed within Permanent Total Enclosures (PTEs) with the emissions fed to a control device. The electroplating tanks are open tanks, but are vented to a control device.

Refer also to the permit. Any process with the potential to emit in significant amounts, which is 1000 lbs. per year of HAP or 5 tons per year of any other regulated air pollutant is list in Section B of the permit. Those processes which emit less than these amounts are listed in Section C of the permit.

What chemicals are used in these open processes?

In short, the same chemicals which are being emitted. See the Permit Application Summary and response below.

What volumes of chemicals are used in these open processes?

Since the meaning of the term “open process” is not clear, the commenter will need to refer to the permit applications. All permitted activities are described in the permit applications on file with the Division for Air Quality. All application forms remain available for public review under the Kentucky Open Records Act at the office of the Division for Air Quality, 200 Fair Oaks Lane, Frankfort, KY 40601.

How are fugitive, nuisance and trespass emissions captured, contained, evacuated, treated and released?

401 KAR 52:001 (38) "Fugitive emissions" means those emissions that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

By definition, fugitive emissions are not captured, contained, or treated, however these emissions must be quantified and reported.

Describe the Local Exhaust Ventilation systems in place for these open processes and treatments (Complete Canopy, Side Baffled, Rear Baffled, etc.)?

Refer to the permit application forms on file with the Division for Air Quality. The only ventilation systems of interest to, or regulated by the Division are those which lead to a control device. Further discussion follows.

Describe the Closed Processes (Closed container / Vessels) at Guardian?

Again, the term “closed process” is unclear. Refer to Sections B and C of the permit for general process descriptions.

What chemicals are used in these closed processes?

Again these are same chemicals which are being emitted. None of the processes at Guardian involve significant chemical transformation. See the Permit Application Summary.

What volume of chemicals are used in these closed processes?

In reference to the painting operation the actual amounts can be determined by dividing the reported emissions by $(1 - 0.85)$ which is the minimum required control efficiency. See the Permit and the Permit Application Summary.

Are they homogeneous volumes or mixture volumes, will chemical stratification occur?

Paint is a mixture that will stratify.

What are the Vapor Pressures of the chemicals used in the open processes?

This is irrelevant to the processes at Guardian. 100% of all volatile organic compounds consumed in a process are considered to be emitted if not otherwise controlled or reclaimed. All VOC and HAP containing materials must be stored in closed containers. For electroplating operations the primary mechanism for emissions is the entrainment of fluid mists during plating operations and not volatilization of the plating bath.

Page 22 – No items requiring comment on this page.

Page 23 -

Is Vapor Pressure an issue regarding evolving chemical contaminant and exposure, reaching equilibrium, in a dilution ventilation environment?

This appears to be a subject concerning OHSA or the State Fire Marshall.

Are any of these chemicals volatile? (open processes)

Again, the term open process is not understood well, but there seems to be some clarification needed.

1. Emissions from electroplating (fluid mists containing metals) are considered particulate matter that are mechanically entrained in the exhaust due to the generation of gas bubbles that occurs as a result of the electric currents used in the bath during plating operations. These fluid mists are controlled by fume suppressants and scrubbers.
2. No volatile organic compounds of any kind (which includes the hazardous and/or flammable materials) are allowed to be used, stored, or transported in open containers,

vessels, etc.

From the permit, Section B, p. 3, p. 10, p. 35, and p. 42;

Good operating practices to minimize the use of VOC-containing materials shall be used as appropriate. Additionally, all purging activities [spray guns, lines, etc.] shall be performed into a container so as to optimize work practice standards and minimize VOC emissions.

And Section B, pp 59-60;

40 CFR 63.4493 (b) The permittee must develop and implement a work practice plan to minimize organic HAP emissions from the storage, mixing and conveying of coatings, thinners and/or other additives, and cleaning materials used in, and waste materials generated by the controlled coating operation(s). The plan must specify practices and procedures to ensure that, at a minimum, the elements specified in paragraphs (b) (1) through (5) of this section are implemented.

- (1) All organic-HAP-containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be stored in closed containers.
- (2) Spills of organic-HAP-containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be minimized.
- (3) Organic-HAP-containing coatings, thinners and/or other additives, cleaning materials must be conveyed from one location to another in closed containers or pipes.
- (4) Mixing vessels which contain organic-HAP-containing coatings and other materials must be closed except when adding to, removing, or mixing the contents.
- (5) Emissions of organic HAP must be minimized during cleaning of storage, mixing, and conveying equipment.

And Section E, p 96;

Pursuant to 401 KAR 50:055, Section 2(5), at all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

What are the Vapor Densities of the chemicals used in the open processes?

Do those chemicals with Vapor Densities over 1.0 pose a fire or explosion risk?

Do those chemicals with Vapor Densities less than 1.0 pose a fire or explosion risk?

What are the Specific Gravities of the chemicals used in the open processes?

Do those chemicals with Specific Gravities over or less than 1.0 pose a chemical stratification risk?

Are any of these chemicals flammable?

What are their flammable ranges?

Are any of these chemicals incompatible with water?

What if you were to experience a leak in the roof over one of these chemical tanks / processes that are incompatible with water?

What other extinguishing means or systems do you have to extinguish a fire involving one of these chemical tanks or processes that are incompatible with water? (CO, Dry Chemical, Aqueous Forming Foam)

Are separate storage containers and vessels electrically bonded and grounded?

Are fixed storage containers and vessels electrically bonded and grounded?

Are all fixed or separate storage containers currently bonded and grounded?

How often do you test and verify your bonding and grounding program and to what OHMS limits is your bonding and grounding program set for?

Are Class I Division I rated electrical components, systems and enclosures used solely in those areas where flammability is an issue?

List the volume of all raw (raw chemical material; either liquid or solid) affluent chemicals stored on site.

Does this volume fluctuate and do your vessels accommodate larger volumes and what are those "capacity" volumes? What are their total capacity volumes?

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Do you have to use inert gas or gases such as Nitrogen or Helium as ullage gases to prevent a fire or explosion of chemical gases or vapors?

Do you monitor both raw and waste chemical storage tanks, from a fire suppression perspective, with rate of rise or temperature instrumentation for the suppression of incipient fires?

Is the volume of raw chemicals you currently store; Presently Low, relatively speaking?

List the volume of all effluent (waste) chemicals stored on site (chemicals used up or discarded from the processes and ready for removal as hazardous waste).

Does Guardian have their own EPA Hazardous Waste Generator licensing number?

Is Guardian a Hazardous Waste Generator and Generator Site? What does that mean?

The commenter has raised questions which identify safety issues which are regulated by agencies other than the Division for Air Quality, primarily OSHA and the office of the State Fire Marshall. This permit is limited to emissions to the "ambient air" of pollutants regulated under the CAA.

401 KAR 52:001 (13) "Ambient air" means that portion of the atmosphere, external to buildings, to which the general public has access.

The permit does not address safety issues regulated by other agencies.

How is this waste stored? In what type and volume of vessels?

This is not specifically a Division topic. However pursuant to 40 CFR 63.4493 (b) (1) All organic-HAP-containing coatings, thinners and/or other additives, cleaning materials, and waste materials must be stored in closed containers, (See Section B, p.61, 1. Operating

Limitations:).

Are any of these chemicals recognized by the EPA, OSHA, ACGIH, AIHA, WHO, EU or Canadian regulatory bodies as Confirmed Human Carcinogens?

Yes

Are any of these chemicals recognized by the EPA, OSHA, ACGIH, AIHA, WHO, EU or Canadian regulatory bodies as Suspect Human Carcinogens?

Yes

Do you use non sparking tools such as brass or non Ferrous tools used to eliminate a sparking hazard?

The Division has no regulatory authority in this matter.

Do you use any devices (plastic balls, surfactants, etc.) to decrease the surface area or increase the surface tension of the evolving liquid?

Yes. See Section B of the permit.

Is local exhaust ventilation used for these open processes?

“Local” exhaust ventilation is not a Division concern except when the emissions captured are ducted to a control device. In this case the percentage of the total emissions captured must be determined by EPA Method 204 so that the overall control efficiency is known.

Overall control efficiency (%) = Capture efficiency (%) * Control efficiency (%)

The Division is not responsible for those ventilation systems which are only used for worker health, comfort, or safety.

Which processes use local exhaust ventilation and which do not?

The electroplating operations and the painting operations are operations for which ventilation air is feed to control devices.

Those processes that do not use local exhaust ventilation, why is that?

Unknown. As explained above the Division does not have regulatory authority in all such matters. However any volatile fugitive emissions which occur inside of the building enclosure are considered to eventually reach and be emitted to the ambient air.

Do you use Push / Pull local exhaust ventilation systems?

Push / pull ventilation is used for the electroplating tanks.

What other local exhaust ventilation system designs do you use?

The coating operation uses Permanent Total Enclosures (PTEs) as defined by EPA Method 204.

What maintenance procedures do you have in place for the local exhaust ventilation systems?

The Division is primarily concerned with the instrumentation used to monitor capture systems. If there are problems with the capture / ventilation system, such problems would be evident from the recorded measurements. From the permit, Section B, p.78:

40 CFR 63.4568 (g) Emission capture systems. The capture system monitoring system must comply with the applicable requirements in paragraphs (g) (1) and (2) of this section.

- (1) For each flow measurement device, the permittee must meet the requirements in paragraphs (a) and (g) (1) (i) through (vii) of this section.
 - (i) Locate a flow sensor in a position that provides a representative flow measurement in the duct from each capture device in the emission capture system to the add-on control device.
 - (ii) Use a flow sensor with an accuracy of at least 10 percent of the flow.
 - (iii) Perform an initial sensor calibration in accordance with the manufacturer's requirements.
 - (iv) Perform a validation check before initial use or upon relocation or replacement of a sensor. Validation checks include comparison of sensor values with electronic signal simulations or via relative accuracy testing.
 - (v) Conduct an accuracy audit every quarter and after every deviation. Accuracy audit methods include comparisons of sensor values with electronic signal simulations or via relative accuracy testing.
 - (vi) Perform leak checks monthly.
 - (vii) Perform visual inspections of the sensor system quarterly if there is no redundant sensor.
- (2) For each pressure drop measurement device, the permittee must comply with the requirements in paragraphs (a) and (g) (2) (i) through (vii) of this section.
 - (i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure drop across each opening the permittee is monitoring.
 - (ii) Use a pressure sensor with an accuracy of at least 0.5 inches of water column or 5 percent of the measured value, whichever is smaller.
 - (iii) Perform an initial calibration of the sensor according to the manufacturer's requirements.
 - (iv) Conduct a validation check before initial operation or upon relocation or replacement of a sensor. Validation checks include comparison of sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources.
 - (v) Conduct accuracy audits every quarter and after every deviation. Accuracy audits include comparison of sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources.
 - (vi) Perform monthly leak checks on pressure connections. A pressure of at least 1.0 inches of water column to the connection must yield a stable sensor result for at least

15 seconds.

- (vii) Perform a visual inspection of the sensor at least monthly if there is no redundant sensor.

What cleaning procedures do you have in place for the local exhaust ventilation systems?

Have you ever had a fire within your ventilations system as a result of poor or non-existent maintenance of these ducts?

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How often are these ventilation systems (LEV) cleaned and how are they cleaned? (is there a routine schedule in place?)

Does an outside contractor conduct the cleaning?

Deposited contaminants removed as a result of ventilation system cleaning, how are those contaminant handled, stored and disposed of?

Do you have to characterize the contaminants removed from the ventilation system for proper disposal?

Are any of the contaminants removed from the ventilation system considered hazardous waste?

How do you handle the removed contaminants from cradle to grave?

The Division has no regulatory authority on these matters except when VOC or HAP containing materials are used. See response below.

During maintenance and cleaning operations, how do you protect against the vaporization of volatile process chemicals in the absence of local exhaust ventilation?

Evaporation of volatile materials used for maintenance and cleaning will occur regardless of whether ventilation systems are in operation or not. The Division considers all such evaporative losses as emissions regardless of whether those emissions are conducted to a stack or are fugitive. Guardian must keep records of the amounts of these materials used; the VOC and HAP content of each material used, and report these amounts as emissions. Operation of process equipment without operation of the designated capture and control equipment is not allowed, therefore process operations would need to be shut down for any maintenance or cleaning.

How often and how long do these local exhaust ventilation systems operate per shift?

Guardian is not allowed to operate process equipment without operating any corresponding process designated capture and control equipment.

Are ALL processes protected by local exhaust ventilation systems interlocked between the process operation and the local exhaust ventilation systems?

Unknown. The Division is only aware of those exhaust systems which are considered part of an affected facility subject to a regulation for which the Division is responsible.

If not what are the procedures (steps) employees must take when operating the system or process?

Any operational procedures required by a specifically applicable regulation or by those generally applicable regulations of the Division for Air Quality are included in the permit.

From 40 CFR Part 70:

§ 70.6 Permit content.

(a) Standard permit requirements. Each permit issued under this part shall include the following elements:

(1) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance.

If there are specific operating procedures or conditions for an emission point these are listed in 1. Operating Limitations in Section B of the permit under that specific process or equipment description. Also, the permittee must complete those actions listed under 4. Specific Monitoring Requirements;, 5. Specific Recordkeeping Requirements;, 6. Specific Reporting Requirements;, and 7. Specific Control Equipment Operating Conditions; for that particular emission point. Section D and Section E of the permit also have conditions which apply to multiple emission points.

What are the distances the employee must travel to initiate or activate the local exhaust ventilation system after process activation or vice versa?

The permit does not allow operation of process equipment unless the process specific capture and control equipment is in operation.

Would you implement the installation of interlocking mechanisms on these processes to ensure the capture and containment of emissions or fugitive emissions from these processes if asked by one or more citizens of this community and for the protection of the 1,200 adjacently located school children?

The painting operation is interlocked to the capture and control system. See Section D of the permit.

Is dilution ventilation also a control measure in these process areas?

Dilution is not considered a form of emission control by the U.S. EPA or the Division and is prohibited by regulation.

401 KAR 50:055, Section 4. Circumvention. No owner or operator subject to the provisions of the administrative regulations of the Division for Air Quality shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

Emissions from the paint lines are necessarily diluted for health and safety reasons as well as quality control, but the applicable standards use a mass balance approach for compliance demonstration as explained above and do not depend on the concentration of pollutants in the exhaust gas.

The regulation above, 401 KAR 50:055, Section 4 is directly applicable to the electroplating operations.

How many room changes / exchanges per hour are made in these process areas?

What percentage of makeup air is fresh air?

How does fresh makeup air enter these rooms?

See discussion above. The Division does not regulate the air inside of the building.

Are these rooms or areas under negative air pressure or are they over pressurized rooms or areas?

The PTEs for the coating operations must operate at a minimum of 0.007 inches of water column negative pressure or at 200 feet per minute average inlet air flow at all natural draft opening as defined by EPA Method 204. Any deviations from these capture system parameters are considered deviations from the permit requirements. Section D contains a detailed description of the operation of the capture and control system including steps to be taken during times of startup, shutdown, and malfunction.

Has the dilution ventilation system ever failed for mechanical or any other reasons?

How long was the outage?

How did you compensate for this system outage?

Dilution ventilation is not a Division consideration.

Have any of the local exhaust ventilation systems ever failed for mechanical or any other reason?

Yes

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How long was the outage and which systems were out?

Guardian has reported incidences of malfunctions, startups, and shutdowns in compliance with their air permit. The length of various outages was dependent upon the nature of the problem. All such incidents are subject to review by the Division for Air Quality and not all such incidents result in excess emissions. Refer to Section E of the permit for the general duty to minimize emissions. Also refer to the Startup, Shutdown, and Malfunction Plan in Section D of the permit for the paint lines. There are also Startup, Shutdown, and Malfunction plan requirements for the chromium electroplating operation. Section B of the permit requires continuous operation of the scrubber systems when any electroplating tanks are in use; see p.18, p.26, p.28, p.30, and p.32. The coating line BACT requirement of 85% control is a daily requirement. All of the above including the emission limitations not specifically listed relate directly to the general duty to minimize emissions. In other words, if

a malfunction occurs, a company can quickly accumulate multiple violations of permit terms and conditions if they do not show diligence in minimizing emissions. For more information regarding a specific incident please contact the Division for Air Quality.

How did you compensate for those system outages?

See response above.

Is there visual verification systems such as Aneroid Manometers like the Magnehelic Gauge, U-Tube or Inclined Monometer Gauges used on LEV systems to ensure proper static or velocity pressures within the system?

Instrumentation is required on all capture systems. Refer to Section B of the Permit.

Do you use sampling Thermometers, Hygrometers, sling, dry and wet bulb psychrometers to determine temperature and humidity with accuracy and precision.

The permit does not require these measurements except when such measurements are required as part of an EPA test Method.

Are there chart or strip recorder systems used on LEV systems to ensure proper static or velocity pressures within the system?

Strip recordings are used as a backup for the electronic data acquisition system used for monitoring and control of the painting operation. See Section D of the permit. Manual readings are taken daily for the electroplating scrubbers. See Section B of the permit.

Are these systems Secondly Calibrated and how often?

As a general question it is unclear what is meant by the term secondarily calibrated. Does this mean calibration against a *secondary standard* or calibration of a measurement made on a *secondary scale*, for example comparing voltage outputs from two or more thermocouples? Regardless, in either case there are uncertainties introduced into any given measurement above and beyond the calibration of the instrument itself and the effect of the total measurement uncertainty in determination of a process variable (i.e emission rate) needs to be assessed through sensitivity analysis. Thankfully, the EPA has made such considerations for various processes in order to specify the necessary compliance demonstration methods in the relevant standards.

Are these systems Primarily Calibrated and how often?

See response above. The permit contains calibration requirements for those instruments required by regulation.

Are you familiar with the terms Random and Systemic Error?

Yes, but it should be noted that different terminology is found in literature to describe the various types of measurement errors. For example Random error is sometimes called

Precision error and Systemic Error is often called Bias.

How do Random and Systemic Errors affect or effect the values of instrument readings?

Random errors are errors for individual instrumentation readings that can either cause an individual reading to be randomly high or low. Systemic errors bias all readings either high or low.

Do Random and Systemic Errors affect or effect the accuracy or precision of instrument readings?

Yes, with the clarification that precision as understood is relative. [Precision as it is used here is not meant to imply random error]. An instrument may be very precise, but if the instrument or method is biased (systemic error), the readings will be inaccurate. Very precise instruments are also subject to random errors.

How do you compensate for Random and Systemic Errors within all of your instrumentation?

Calibration is the primary method of removing bias, although a poorly designed measurement system can also introduce bias or systemic errors even if such a system incorporates a well calibrated instrument. Random errors can be addressed in the design of the measurement system and methodology to be used, but individual random errors cannot directly be compensated for; they are random. The magnitude of such errors can be reduced by proper location of sensors for example and the effects of random errors on a given measurement can also be reduced though statistical methods. The EPA provides such specifications in the applicable regulations when instrumentation is necessary to demonstrate compliance with the emission limitations. 40 CFR 63, Subpart PPPP which Guardian is subject to is one of the more comprehensive standards in this regard.

How often are static pressure readings taken at each LEV system?

Daily for the electroplating scrubbers, continuously for the painting operations. Refer to Section B of the Permit.

How often are velocity pressure readings taken at each LEV system?

Continuously if used to monitor the PTEs. No other velocity pressure readings are required by the applicable regulations or the permit except for the establishment of flow as required under the applicable test methods. Refer to Section B of the Permit.

Are sampling determinations made for each LEV system considering: Face Velocities at the hood, hood entry losses, frictional losses due to duct length and variability (expansions / contractions) branch circuits and Duct Contamination?

40 CFR 63, Subpart PPPP for example requires a minimum continuous average face velocity across all natural draft openings in a PTE or a minimum continuous pressure drop reading across a PTE. Frictional losses, duct length, fittings, contamination, etc. are issues to be addressed in the design of the ventilation system and selection of a fan. The Division does not review the details in the design of the ventilation systems. The Division is only

concerned that the ventilation system as designed meets the performance parameters required by an applicable regulation, and that continued performance is demonstrated by monitoring, record keeping, and reporting.

Do you use smoke or tracer gases to verify air flow?

Yes. Refer to EPA Method 204.

Who conducts these LEV surveys?

Guardian is responsible for any monitoring or testing required by the permit. In general, outside consulting firms are often employed for testing. All test protocols must be approved by the Division. The Division then witnesses the test, reviews the test results, and either approves of, or disapproves of the results.

What instruments do they use when conducting such surveys? (Pitot tube probes, Swinging Vane Anemometers, Rotating Vane Anemometers, ThermoAnemometers, Velometers and which sampling method is utilized / grid method, 6 point or 12 point traverse)

Per regulation, Guardian has the option using different instruments to determine flow rates as specified in EPA Method 2, 2A, 2C, 2D, 2F, or 2G accordingly and sampling locations are to be selected with EPA Method 1 or 1A as appropriate.

Do you use combustible gas monitors to monitor your stack discharges?

Unknown, as the Division does not require this. However with solvent based paints it is not uncommon to monitor the concentration of solvent vapors within enclosed spaces for reasons of insurance, health, and safety.

Are these Static and Velocity Pressure readings taken recorded?

Yes. For capture systems and control systems these records must be kept to demonstrate compliance with overall emission limitations. Refer to Section B of the Permit.

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Contaminated air from the dilution ventilation system, how is that air vented from the room and then from the facility?

Contaminated air from the dilution ventilation system, is that air vented directly to atmosphere?

What volume of air, volumetric air flow in liters per minute or cubic feet, of dilution ventilation effluent is vented per day directly to the atmosphere? (NTP / STP)

As explained previously, dilution ventilation is not regulated by the Division.

Are your plastic processes; blowing or extruding?

Neither. Injection molding.

Smoke Stack Issues: pp. 27-62.

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What is the distance from Guardian to McBrayer Elementary?

What is the distance from Guardian to the Rowan County High School?

What is the distance from Guardian to the Rowan County High School Stadium?

Unknown. Air toxics modeling is used to predict the highest concentration at the property line and beyond. The Maximum Allowable Emission Level (MAEL) is then established such that the maximum concentration in the Ambient Air as defined in 401 KAR 52:001 does not exceed the Level of Concern (LOC) for a given pollutant.

Discharges from the facility smoke stacks, are they homogeneous discharges or are they mixed chemical combinations?

Mixed combinations

Discharges from the stacks, are they vapors?

None of the regulated pollutants are emitted in the vapor phase. Water resulting from combustion may sometimes occur in the vapor phase depending on ambient conditions.

Discharges from the stacks, are they gases?

Yes, mainly products of combustion.

Discharges from the stacks, are they smokes?

Yes, see above.

Discharges from the stacks, are they mists?

Potentially, if there is a malfunction with the scrubber system.

Discharges from the stacks, are they fumes?

No

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Are they Monodisperse Aerosols

Probably not. See below.

Are they Polydisperse Aerosols

The Division regulates aerosols as particulate matter using the worst case scenario assumption for which we can regulate which is to consider all particulate matter as having an aerodynamic diameter of 10 µm or less (PM10). Ground pigments used in coating manufacture are typically below 10 µm, but the gross droplets of paint contained in any

“overspray” are easily visible and therefore larger than 10 μm . Most of this overspray is collected on filters and any remaining droplets must pass through the RTOs. That portion of material that remains is likely very small which is why the Division considers it PM10, but the size distribution is unknown.

What are their measured Aerodynamic Diameters

See above.

Do the conditions of whether chemicals or smoke stack discharges are; homogeneous, monodisperse, polydisperse and aerodynamic diameters have conditional effects regarding the altitude, eddies, downwind draft and ultimately the plume size, shape and downwind data profile of chemicals discharged from your smoke stacks?

Yes, but these are negligible compared to ambient weather conditions. For consideration of the relative concentrations of pollutants, sophisticated air dispersion modeling programs can be employed which account for things like gravitational settling and disposition, chemical transformation, local terrain, and historic weather data. Gravitational settling and disposition and chemical transformation, are mainly considerations for long range transport models (>50 km). A more conservative estimate is to assume no settling and disposition. The simplest screening models consider only the worst case weather scenario and therefore provide the most conservative estimates. For more information about Air Quality Models see Appendix W to 40 CFR Part 51 – Guideline on Air Quality Models.

What are their Stokes or Sedimentation Diameters

Again this is unknown. We don't consider any particles settling out on company property.

Are they Agglomerates or Flocs

Unknown. See above.

Describe the mixture volumes? What chemicals are mixed together? What volumes are mixed together? What is their compatibility? What is their reactivity? What is their flammability?

It is not clear what process or processes the commenter is referencing by these questions since the proceeding questions concern stack discharges. In general, solvent based paint is used, to which additional solvent may be added for thinning. The primarily component of an electro-plating bath is water with metal salts, acids, and other bath additives. The injection molding material is a solid resin which is melted and reshaped. Material Safety Data Sheets (MSDS) for all materials in use are on file with the Division for Air Quality. The MSDS contain the ingredient components of the materials used. All permitted activities are described in the permit applications on file with the Division for Air Quality. All documents remain available for public review under the Kentucky Open Records Act at the office of the Division for Air Quality, 200 Fair Oaks Lane, Frankfort, KY 40601.

Given some Ideal Gas Laws; how do you actively compensate and record discharged air volumes when atmospheric temperature and pressure change?

Volumetric air flow rates are determined by Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A to 40 CFR part 60 as appropriate.

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Are your LEV systems branched circuit design?

Yes

Do you have cleanouts at branches, elbows and other points where impacted chemical contaminants may aggregate and if so; how often do you clean out these source points?

Unknown, as this is not specifically required by the Division.

Do you use plenum ventilation stack systems?

Yes

What are the nominal stack velocities? (3,000 fpm is a good stack velocity per vent. man.)

Approximately 35-50 feet per second. The lower velocity is for the thermal oxidizers which are emitted at temperatures much above ambient. Fugitive emissions are considered to be emitted essentially at ground level with zero velocity.

Why are your stack heights so low? (EPA recommended 65 feet or higher)

The underlying assumption here seems to be incorrect. The EPA does not recommend that stacks be 65 meters or higher. One of the reasons EPA addressed “good engineering practice (GEP) stack height” was so that sources, when considering (i.e. modeling) the impact of pollutants they emit cannot take credit for any dilution effects by building excessively tall stacks. GEP is calculated by using a formula up to a maximum height of 65 meters which is the maximum GEP stack height for which a source can take credit.

40 CFR 51 – Requirements for Preparation, Adoption, and Submittal of [State] Implementation Plans

§ 51.118 Stack height provisions.

(a) The plan must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in §51.118(b). ...

See also 401 KAR 50:042. Good engineering practice stack height.
<http://www.lrc.state.ky.us/KAR/401/050/042.htm>

Are intrinsically safety system components in use for your flammable vapor capture, treatment and discharge systems?

This is not a subject regulated by the Division.

Do your ventilation systems use dampers, are they automatic or manual?

The Division is concerned only with the potential bypassing of control equipment. From the permit, Section B, p.77;

4.(1) The permittee must monitor or secure the valve or closure mechanism controlling the bypass line in a nondiverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (b) (1) (i) through (v) of this section.

4.(1)(iv) Automatic shutdown system. Use an automatic shutdown system in which the coating operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the coating operation is running. The permittee must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shut down the coating operation.

4. (2) If any bypass line is opened, the permittee must include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports required in § 63.4520

Do you have OEM / Service Manuals for every system and do you strictly comply with them?

This is not specifically required by the Division, but there are incentives to keep any manuals and comply with the recommendations. All process equipment is subject to the general requirements of 401 KAR 50:055 and much of the equipment is subject to Federal regulation under 40 CFR Part 63. An equipment manufacturer's recommendations and instructions can help the company demonstrate compliance.

401 KAR 50:055, Section 2 (5) At all times, including periods of start-up, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the cabinet which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

63.6 (e)(3)(vi) To satisfy the requirements of this section to develop a startup, shutdown, and malfunction plan, the owner or operator may use the affected source's standard operating procedures (SOP) manual, or an Occupational Safety and Health Administration (OSHA) or other plan, provided the alternative plans meet all the requirements of this section and are made available for inspection or submitted when requested by the Administrator.

Are these Static and Velocity Pressure readings compared to design limits to ensure the systems are operating within the operational design limits of these systems?

Design parameters (via Method 204) for the coating lines or pressure drops established by testing for the scrubbers.

Have there ever been exceptions between the design operating limits and actual readings obtained indicating that the system was not performing within the design operating limits?

Yes

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Are there regulatory or permitting requirements that such readings be taken?

Yes

Are there regulatory or permitting requirements that such reading be committed to writing or logged?

Yes. Refer to 40 CFR Part 70, § 70.6 (a)(3), Monitoring and related recordkeeping and reporting requirements.

Who does the verification testing?

The Division holds Guardian responsible for any testing required by the permit and daily monitoring and recordkeeping.

Has this person ever missed a verification test or failed to commit to writing or logging of any such data?

Are these tests and is the data obtained and written or logged 100% accurate 100% of the time?

Have logs ever been manipulated where data was entered at a much later date in order to shown a complete log?

Have logs ever been manipulated where data was entered for a certain test when no test was conducted or values obtained in order to show a complete log; Or, has an employee ever been terminated for not conducting such monitoring or testing?

If someone were to testify that this did occur would they be lying?

Why would they lie about such a matter?

The commenter seems to be combining terminology. There are required performance tests and daily monitoring and recordkeeping requirements. Performance tests are witnessed and approved by the Division. Daily compliance with the regulations which includes monitoring and recordkeeping activities are often distributed among various employees. The Division holds Guardian responsible for all such activities.

Could any discharges from the stacks react with water vapor either from the ambient air or from other sources mixed within the stack / scrubber system and create Acid Rain?

Combustion inevitably leads to NO_x formation which is a precursor to acid rain. Materials used in the plating baths include acids.

Are you familiar with the term Boundary Layer?

Yes

Page 31 – 57; There are no comments requiring a response on these pages.

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What are the effects of polarization on the raw, evacuated, chemically changed or thermally changed chemicals in use or discharged?

Unknown. The pollutant with the highest potential to emit from Guardian is Volatile Organic Compounds, (VOC). There are also a number of Hazardous Air Pollutants (HAPs) emitted from Guardian, most of which are also VOC. Determining the health effects from exposure to hazardous air pollutants is a very complicated matter that goes far beyond the expertise of the Division. Therefore the Division looks to the EPA and others to establish safe exposure levels for the various HAPs. Likewise, the selection of control equipment is often based on EPA recommendations. Specifically, Guardian has had to undergo BACT analysis. BACT for the coating operations at Guardian was determined to be thermal oxidation. For further information see the RACT/BACT/LAER Clearinghouse (RBLC) on the EPA's website.

What about the Electrostatic aggregating effects?

See above.

Do you have "State of the Art" continuous monitoring equipment placed or situated within the laminar air flow of these discharge stacks to record the concentration of containments or regulated discharge toxicants to the atmosphere? Do you think that would be a good idea? To continuously monitor what is being discharged from these stacks and have a record of such? Would you implement such continuous monitoring systems and equipment if asked by one or more citizens of this community to do so and for the protection of 1,200 adjacently located school children? Would you implement any other "State of the Art" continuous monitoring equipment for your dilution ventilation system discharges if asked by one or more citizens of this community to do so and for the protection of 1,200 adjacently located school children?

"State of the Art" is a subjective term not defined in any of the applicable regulations. However Guardian does have continuous monitoring equipment which exceeds the monitoring requirements of the Federal standard, 40 CFR 63, Subpart PPPP applicable to the paint operation. Additionally, they use control equipment and perform monitoring in excess of the requirements in Federal Regulation 40 CFR 63, Subpart N applicable to chromium electroplating.

Location of sensors is control equipment dependent and is specified in the relevant standard or the applicable test method.

Are you familiar with the term Settling Velocities? Are Settling Velocities directly related to particulate size? Are you familiar with the term Micron (1/1000 of a meter) May particulate in the Micron and Sub-Micron size level remain in the atmosphere for days, weeks, and even months before settling out of the atmosphere? What is the range of particulate size discharged from your

discharge stacks?

The Division considers all particulate matter as PM10 for regulatory purposes. See discussion above for the Division's response to comments located on page 28.

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Are you familiar with the term HEPA (Highly Efficient Particulate Air)?

Yes

What is the efficiency of HEPA filtration? (HEPA filters can remove at least 99.97% of airborne particles 0.3 micrometers (µm) in diameter.)

Comment; the Division does not usually consider filter efficiencies this high in determining potential to emit. Even if the filter media itself is 99.97% efficient there is the possibility of leaks bypassing the filter due to poorly fitting filters, improper installation, or damaged equipment. The same filter efficiencies used in the potential to emit calculations are then used when calculating actual emissions.

Are you familiar with the term Non-Respirable Dust?

What particulate size equates with Non-Respirable Dust?

40 CFR 51.100 (oo) Particulate matter means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

Are you familiar with the term Respirable Dust?

What particulate size equates with Respirable Dust?

40 CFR 51.100 (qq) PM 10 means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on appendix J of part 50 of this chapter and designated in accordance with part 53 of this chapter or by an equivalent method designated in accordance with part 53 of this chapter.

What do the terms Respirable and Non-Respirable Dust mean or mean to you?

PM10 is a Federally Regulated "criteria" air pollutant for which a National Ambient Air Quality Standard (NAAQS) has been established. Total particulates are regulated by the State.

Do you use HEPA filtration in any of your processes?

Guardian is not required to use HEPA filtration.

How often to you change your HEPA filtration? Is that a routine maintenance objective? Have you ever exceeded your imposed schedule of changing these HEPA filters, Why and what was the longest interval exceeded?

Guardian is not required to use HEPA filtration.

Has any analysis or data been developed to model the settling velocities of the liquids, vapors, mists, fumes or smoke discharges from the discharge stacks?

There is no regulatory basis for this.

Describe the prevailing wind data that is a consideration of your current stack discharge profile?

Has the prevailing wind data that is a consideration of your current stack discharge profile ever changed direction?

From Guardian's latest Dispersion Modeling Protocol:

Meteorological Data: We will use five years of surface meteorological data from the National Weather Service station at Jackson, Kentucky along with corresponding upper air data from Huntington, West Virginia. These are the closest, most representative sites for Morehead, Kentucky. We will use 1987 through 1991 data, which are the most recent five years of data available from the EPA's SCRAM website.

The Industrial Source Complex air dispersion model (ISCST3) used in the analysis uses real data collected on an hourly basis and performs the analysis for each hour. Therefore 43,800 different sets of wind data were considered with the 5-year data input.

What is the margin of error considered as part of the current considerations of your current stack discharge profile as it pertains to your prevailing wind data?

Unknown, but it is likely insignificant compared to the conservation assumptions used the model itself and the modeling technique.

Do you have a mounted wind sock atop the facility? Would you be willing to mount one as soon as possible if one or more of the citizens of this community requested you to do so and for the protection of this communities 1,200 students? How often is this prevailing wind data updated and considered?

There is no regulatory basis for this.

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Has any analysis or data been developed to model the downwind data profile for discharges from the stacks?

Modeling VOC emissions was considered during the PSD review since VOC is a precursor to ozone, but determination of the magnitude and locations of ambient concentrations due to the proposed construction and operation at Guardian was not attempted because there is neither an atmospheric dispersion model available to predict ozone concentrations nor is there a National Ambient Air Quality Standard (NAAQS) for VOC. Modeling has been done for all toxic air pollutants emitted from Guardian.

What is the current downwind data profile corridor that has been established?

Not applicable. See above.

Has any air sampling been conducted within the modeled downwind data profile corridor? What are the results?

See below.

Has any air sampling been conducted at any of the schools; i.e. McBrayer Elementary or Rowan County High School?

From permit F-96-25, condition #35:

Pursuant to Regulation 401 KAR 50:050-Monitoring, the permittee is required to implement an ambient air monitoring program. Within 60 days after issuance of this permit, the permittee shall develop and submit to the Division for Air Quality's Technical Services Branch for approval, an ambient air monitoring plan for the proposed plant. The monitoring plan, shall consider, but not be limited to, the following provisions: Sampling and analyses of all pollutants proposed to be emitted, sampling frequency and duration for all pollutants, monitoring equipment specifications, equipment siting criteria, standard operating procedures, data reporting procedures, and quality assurance plans. At a minimum, one monitoring location containing all provisions shall be located at the Rowan County Senior High School. The monitoring plan shall be developed and the monitoring program operational prior to initial start-up of the plant.

Guardian conducted 17 months of ambient air monitoring at the site. Data was collected 7 months prior to plant startup and for 10 months after startup with a total of 435 samples collected. For data integrity the samples were split between a laboratories selected by Guardian and the Division for Air Quality. Based on this comparison, operation of the facility did not have a significant impact on air quality in the area. (Letter from John Hornback, Director of the Divison for Air Quality to Ms. D. Kay Freeland, Superintendent, Rowan County Board of Education, December 23, 1998).

Should air sampling be conducted within the established downwind data profile? Should air sampling be conducted at any of the established schools?

See above.

Once construction is complete for the new Middle School what will be the distance from Guardian to the new Middle School?

Unknown

Has any air sampling been conducted at the proposed site of the new Middle School and what impact the air sampling analytical results may have to these middle school students?

There is no regulatory basis for this.

Describe adiabatic ambient air conditions and the impact this situation may have on the currently modeled downwind data profile corridor?

Not applicable with the current air dispersion models.

Has Guardian ever had a release of any regulated contaminant from any of its discharge stacks in excess of the allowable limits under permit?

Yes

Has Guardian ever had a release of Hexavalent Chromium from any of its discharge stacks to the extent where the Hexavalent Chromium settled onto employee cars parked in Guardian employee parking?

Guardian is required by the permit, Section F, 7 and 8 to report any emission related exceedance including those due to startup, shutdown, and malfunctions. There have been exceedances reported from the plating operation and problems with the scrubbers which resulted in the Division issuing a Notice of Violation and Guardian's eventual replacement of the scrubbers. Damage to automobile finishes due to acid mists from uncontrolled electroplating facilities has been documented by the EPA, (See Air Pollution Engineering Manual, AP-40), so potential damage to employee vehicles due to a malfunction of the control equipment is believable, but this is not specifically required to be reported. Any malfunction which leads to such an event however would have to be reported.

Has Guardian ever had a release of any other chemical used in its process from any of its discharge stacks to the extent where the chemical settled onto employee cars parked in Guardian employee parking?

See response above.

If someone who had direct knowledge of any such instances were to testify to the contrary would they be lying? Why would they lie about that?

Unknown

How were they exception discharges handled and reported to the EPA or any other responsible agency?

When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, Guardian is required to notify the Division by telephone as promptly as possible. (Refer to the permit, Section F, 7 and 8).

Do you comply with the OSHA Hazard Communication Program? How so?

Unknown

Is chemical substitution practiced daily at Guardian?

This is not a specific requirement of the Division.

Industrial Hygiene: pp. 63-64. There are no comments related to the Division in this section.

Fire / Explosion: pp. 65-68. There are no comments related to the Division in this section.

Moral Issues: pp. 68-70. There are no comments related to the Division in this section.

Photographs: pp. 70-73. There are no comments requiring a response in this section.

Addendums: pp74-108. There are no comments requiring a response in this section.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.